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APPLICATION FOR UNITED STATES PATENT

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**UNIVERSAL MOUNTING KIT AND
METHOD OF USING SAME**

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3 **UNIVERSAL MOUNTING KIT AND METHOD OF USING SAME**

6 **TECHNICAL FIELD**

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[001] This invention relates to a mounting apparatus and kit and a method of using the kit for mounting a flashlight to a cylindrical tube, and more particularly to a universal mounting kit and method of using the kit for mounting a flashlight to a bicycle or barrel of a rifle.

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12 **BACKGROUND**

[002] There have been many different types of mounting apparatus for mounting a flashlight to a bicycle, a barrel of a rifle or some other type of stationary surface. For example, reference can be made to the following U.S. Patent Nos.: 4,541,555 by Miree; 4,618,081 by Miree; 4,688,705 by Miree; 4,697,725 by Miree; 4,707,772 by Jimenez et al.; 5,184,884 by Maglica et al.; 5,608,919 by Case; 5,692,268 by Case; and 6,565,226 by Cummings.

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[003] While several of the above-referenced patents disclose the use of a mounting apparatus for securing a flashlight to a bicycle or barrel of a rifle, such devices have not been entirely satisfactory. In this regard, there is a need for a new and improved universal mounting kit and method of using the kit for mounting a flashlight to a bicycle or gun barrel in a fast and convenient manner, at a very low cost, and where the flashlight can be installed and removed without modification to the bicycle or gun barrel.

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SUMMARY OF THE INVENTION

[004] In one preferred embodiment of the present invention a universal mounting kit includes a support apparatus, a set of tie straps, a cushioning pad, a set of mounting pads, and a sheet of instructions directed to providing a user with

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a step by step procedure for securing the support apparatus removably to a tubular surface, such as the handlebar of a bicycle or the barrel of a rifle or shot
3 gun and for removably securing a flashlight to the support apparatus

BRIEF DESCRIPTION OF THE DRAWINGS

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[005] FIG. 1 is a pictorial view of a universal mounting kit, which is constructed in accordance with the present invention;

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[006] FIG. 2 is a side elevational view of a support apparatus forming part of the universal mounting kit of FIG. 1;

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[007] FIG. 3 is a top plane view of the support apparatus of FIG. 2;

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[008] FIG. 4 is a bottom plane view of the support apparatus of FIG. 2;

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[009] FIG. 5 is a pictorial view of the support apparatus of FIG. 2, illustrating it supporting a flashlight from the handlebars of a bicycle;

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[010] FIG. 6 is a pictorial view of the support apparatus of FIG. 2, illustrating it supporting a laser pen from the barrel of a shotgun;

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[011] FIG. 7 is a sectional view of the support apparatus of FIG. 2, taken substantially along line 7-7;

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[012] FIGS. 8A-8B illustrate the steps of using the universal mounting kit of FIG. 1 to removably secure a flashlight to the handlebars of a bicycle;

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[013] FIG. 9 illustrates the steps of using the universal mounting kit of FIG. 1 to removably secure a flashlight to the barrel of a rifle; and

[014] FIG. 10 illustrates another universal mounting kit, which is constructed in accordance with the present invention, illustrating the mounting kit supporting a flashlight from a tubular member.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[015] Referring now to the drawings and more particularly to FIG. 1 thereof, there is illustrated a universal mounting kit 10, which is constructed in accordance to the present invention. The universal mounting kit 10 is adapted to be removably secured to a first tubular surface, such as to the handlebars of a bicycle or the barrel of a rifle or shot gun and is further adapted to be removably secured to a second tubular surface, such as to the housing body of a conventional flashlight or laser pen.

[016] Considering now the universal mounting kit 10 in greater detail with reference to FIG. 1, the universal mounting kit 10 is packaged in a clear transparent bag 11 for facilitating displaying or shipping the kit 10 in a convenient manner. Within the shipping bag 11, the various components of the kit are arranged and generally include a support apparatus 12, a cushion pad 13, a set 14 of tie straps 40-43, a set 16 of mounting pads 50-53, a battery powered lantern 17, such as a flashlight or laser pen, and a sheet 18 of instructions directed to providing a user with a step by step procedure for securing the support apparatus 12 removably to a tubular surface, such as the handlebar 60 (FIG. 5) of a bicycle or the barrel 70 (FIG. 6) of a shotgun or the barrel 80 of a rifle and for removably securing a flashlight 90 to the support apparatus 12.

[017] As best seen in FIGS. 1-2, the support apparatus 12 generally includes a first or tube support member 20, having an elongated U-shaped channel 32 adapted to engage and fit the concave surface of the handlebar 60 (FIG. 5) of a bicycle or the gun barrel 70 (FIG. 6) of a shot gun or the barrel 80 (FIG. 9) of a

rifle, and a second or lantern support member 22, having another elongated U-shaped channel 34, which is adapted to engage and fit the concave surface of a lantern housing, such as the housing 92 of the flashlight 90, or a laser pen housing 62 (FIG. 6) of a laser pen 60.

[018] As best seen in FIG. 7, the tube support member 20 and the lantern support member 22 are secured together by a rivet or pivot pin 24, which allows the two support members 20 and 22 to rotate in a 360 degree circle relative to one another and which causes them to be slightly spaced from one another. The terminal ends of the tube support member 20 and lantern support member 22, are sufficiently spaced apart from one another to permit the tube support member 20 to be removably secured in a fixed stationary position to the handlebar 60 by a pair of the tie straps, such as the tie straps 40-41 as best seen in FIG. 5.

[019] As best seen in FIGS. 1, 4 and 7, the cushion pad 13 includes a pad 36 having one of its surfaces coated with an adhesive 38 that completely covers the surface except at one of its corner. A peel sheet 37 (FIG. 1) covers and protects the adhesive 38 until it is time to use the cushion pad 13 as will be explained hereinafter in greater detail.

[020] As best seen in FIG. 1, each of the Velcro strips 50-53 in the set 16 of strips, have one of their surfaces also coated with an adhesive, such as an adhesive 54, that completely covers their respective surfaces except for at a corner portion of each strip as indicated relative to the pile bearing strip 50 and the hook bearing strip 51. A peel sheet 56 having a peel off here mark 57 covers and protects the adhesive 54 disposed on the pile bearing strips 50 and 53, while the hook bearing strips 51 and 52 have a peel sheet 58 with a peel off here mark 59.

[021] Considering now the method of using the universal mounting kit 10 to secure a flashlight 90 to a tubular handlebar 60 in greater detail with reference to FIGS. 5, and 8A-B, a user not shown removes that various components from the shipping bag 11 and opens the instructions 18 to review the step by step assembly procedure.

3 **[022]** In this regard, assembly of the kit 10 begins by the user selecting the
cushion pad 13 and grabbing it at its one marked corner where its peel sheet 37
can be grasped and pull back and completely away from the pad 36 so that its
adhesive layer 38 is completely exposed. The pad 36 is then oriented so that the
adhesive layer 38 will come into contact with the lower support member 20. In
6 the regard, the user brings the pad 36 into contact with the support member 20,
attaching the cushion pad 36 to the tubular support member 20 so that the
cushion pad 36 extends along substantially the entire longitudinal dimension of
9 the support member 20 and completely covering the rivet 24 as best seen in FIG.
4. In this manner, as best seen in FIG. 8A, the cushion pad 36 protects the
tubular surface 60 from being scratched by the rivet 24 and further acts as a
12 friction like gripping surface the helps hold the support member 20 in
engagement with the tubular surface 60 when the support apparatus 12 is placed
thereon.

15 **[023]** Next the user secures the support member 20 to the handlebar 60 using
two of the tie straps, such as the tie straps 40 and 41 respectively. With the
support member removably fixed to the handlebar 60, the user next rotates the
18 lantern or upper support member 22 so that is substantially perpendicular to the
tubular or lower support member 24 as best seen in FIG. 8A.

21 **[024]** The user at this point in the assembly process can determine whether to
more permanently secure the flashlight 90 to the support member 22 by using
the other pair of tie straps 42 and 43 respectively as best seen in FIGS. 5 and
8B, or whether to removably secure the flashlight 90 to the support member 22
24 by using the set 16 of Velcro strips 50-54. In the first instance, the user retrieves
the other pair of tie straps 42 and 43 and secures the back of the flashlight
housing 92 to the back or rear end of the support member 22 with tie strap 42
27 and secures the front of the flashlight housing 92 to the front or forward facing
portion of the support member 22 with the tie strap 43. In the second instance,
the user retrieves one pair of like Velcro strips, either both with loops or either
30 both with hooks, and peels away their respective peel sheets from their
respective marked corners. As an individual one of the peel sheets 56 is

completely peeled away from the adhesive 54, the user orients the adhesive 54 so that it can be engaged with support member 22 to either the right or left of the rivet 24 within the channel 34 as best seen in FIG. 3. The user then presses the surface of the adhesive 54 into engagement with the support member 22. The user then repeats this process using the other one of the like Velcro strips to affix it to the support member 22 but on the opposite side of the rivet 24 as best seen in FIG. 3. In this manner, the two like Velcro strips 51 and 52 are secured within channel 34 of the support member 22.

[025] The user then selects the other remaining pair of like Velcro strips 50 and 53 and removes their respective peel sheets so they can be affixed to the flashlight housing in a spaced apart manner as best seen in FIG. 8B. Once the support member 20 and the flashlight housing 92 have been affixed with the set 16 of Velcro strips, the flashlight 90 can be removably secured within the channel 34 of support member 22. In this manner, whenever the user needs the flashlight 90 for other than lighting the path of travel for the bicycle, the user can easily and quickly remove the flashlight 90 from the support apparatus 12 member and use it for the other purpose. Once this alternate use for the flashlight 90 has been completely, the user can once again replace the flashlight 90 within the support apparatus 12 for use as a lantern to light the path of travel that followed by the user on his or her bicycle. These is an important feature of the present invention as the user can quickly and easily install the kit 10, without modification to the bicycle and can use the flashlight 90 for multiple purposes.

[026] In an alternative use of the kit 10, the user can affix the support apparatus 12 to the barrel 70 of shotgun while simultaneously securing a lantern, such as a laser pen 60, to the support apparatus 12. In this regard, the user places the laser pen 60 within channel 34 of the lantern support member 22 and then while holding the pen 60 in engagement with the support member 20, and with the support member 20 in parallel alignment with the support member 22, the user engages the previously installed cushion pad 36 with the barrel 70 as best seen in FIG. 6.

3 **[027]** Next the user secures the support apparatus 12 with its loaded laser pen
60 to the barrel 70 using a pair of the tie straps, such as the tie straps 40 and 41
as best seen in FIG. 6. In this manner the user quickly and easily adapts the shot
gun with a laser pen 60 that is mounted without modifying the barrel 70 and
which is mounted in such a way to allow both batteries and bulbs within the laser
6 pen 60 to be easily replaced if such is required.

9 **[028]** From the foregoing, those skilled in the art should understand that the
barrel 80 of a rifle can also be adapted to with a flashlight 90 using a similar
procedure as best seen in FIG. 9. In this regard, with the flashlight 90 held within
the support member 22, the user engages the cushion pad 36 with the barrel 80.
The user then secures the flashlight 90 and the support apparatus 12
12 simultaneously to the barrel 80 using a pair of the tie straps, such as tie straps 42
and 43.

15 **[029]** Considering now the set 14 of tie straps 40-43 in greater detail with
reference to FIG. 1, each of the tie straps 40-43 are identical in construction so
only tie strap 40 will be described hereinafter in greater detail.

18 **[030]** Considering now the tie strap 40 in greater detail with reference to FIG. 1,
the tie strap 40 generally includes a flexible bundling molded of plastic or nylon
having an elongated body portion 44 having a flat side 45 and a ribbed side 46
21 which extends throughout the major length of the elongated body portion 44. One
end of the body portion 44 comprises a tail end portion 47, which is slightly
rounded. The opposite end of the body portion 44 of the strap 40 terminates in an
24 elongated clinching eyelet 48. The eyelet 48 has an aperture 49, which is
dimensioned for receiving therethrough the body portion 44 of the strap 40.

27 **[031]** In use, a user grasps the tail end portion 47 and its opposite eyelet end 48
passed about a tubular member, such as the tubular member 80 with its ribbed
side in 46 in facing relation with the tubular member 8, from its far side, then under
the tubular member 80 and forwardly upward to a position nearest to the user,
30 whereupon the eyelet end 48 is held in one hand and the tail end 47 is intruded
into and through the aperture 49 until the tail end portion of the body has been

forced therethrough. With the body portion so looped about the tubular member 80, the tail end portion is grasps and pulled until the loop formed around the tubular member is brought into abutting engagement with the tubular member 80. The eyelet 48 is self-locking with the ribs of the body thereby resulting in a cinching of the strap 40 to secure the strap 40 about the tubular member 80.

[032] Referring now to the drawings and more particularly to FIG. 10 there is illustrated another universal mounting kit 110, which is constructed in accordance to the present invention. The mounting kit 110 is identical in construction to mounting kit 10 except that it has a different type of support apparatus 112. In this regard, the support apparatus 112 includes a tubular support member 120 and a lantern support member 122.

[033] The tubular support member 120 has a flexible wall structure with an opening having a width dimension "D" that expands as the support member 120 is pressed down onto a tubular surface 80 having a larger radius than the width dimension "D" of the opening of the support member 120. When the support member 120 is further pushed down onto the tubular surface 80, the flexible wall opening continues to expand until its width dimension is the same as the radius of the tubular surface 80 and then, as the user still continues to push the support member 120 onto the tubular surface 80, the expanded flexible walls close down or wrap into abutting engagement with the tubular surface 80 as best seen in FIG. 10, thereby securing the support apparatus 112 to the tubular surface 80. With the support member 120 in a snug friction tight fix with the tubular member 80, there is no need to use any of the tie straps to further secure the support member 112 to the tubular surface 80. It should be understood by those skilled in the art, that should a user desired a more secure arrangement, the user can use the tie straps within kit 110 to achieve this purpose.

[034] Considering the support apparatus 112 in still greater detail, the support member 122 also includes a flexible wall structure with another opening having a width dimension "d" that is substantially smaller than the width dimension "D" of the opening in the support member 120. The width dimension "d" of the opening in support member 122 expands as the support member 122 is pressed down

onto a tubular surface 92 having a larger radius than the width dimension "d" of the opening of the support member 122. When the support member 122 is further pushed down onto the tubular surface 92, the flexible wall opening continues to expand until its expanded width dimension "d+" is the same as the radius of the tubular surface 92 and then, as the user still continues to push the support member 122 onto the tubular surface 92, the flexible wall snaps or closes down into abutting engagement with the tubular surface 92, as best seen in FIG. 10, thereby securing the support apparatus 112 to the tubular surface 92. With the support member 122 in a snug friction tight fix with the tubular member 92 there is no need to use any of the tie straps or Velcro strips to further secure the support member 112 to the tubular member 92. It should be understood however, by those skilled in the art, that should a user desired a more secure arrangement, the user can use the tie straps or Velcro strips within kit 110 to achieve this purpose.

[035] Although in the preferred embodiment of the present invention the cushion pad 13 and the set 16 of Velcro strip have been described as being used with support apparatus 12 in a particular manner, it is contemplated within the scope of the present invention, that the cushion pad 13 could be used in the lantern support member 122 to protect the lantern 17 from being scratched by the rivet 24, and that the set 16 of Velcro strips could be mounted for use with the support member 120 and a supporting surface, such as the handlebar 60. Thus, while particular preferred embodiments of the present invention have been disclosed, it is to be understood that various different modifications are possible and are contemplated within the true spirit and scope of the appended claims. There is no intention, therefore, of limitations to the exact abstract or disclosure herein presented.

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